



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
04.04.2007 Bulletin 2007/14

(51) Int Cl.:
H01L 21/20 (2006.01) **G02B 26/10** (2006.01)
G02B 27/10 (2006.01) **H01L 21/268** (2006.01)

(43) Date of publication A2:
17.01.2007 Bulletin 2007/03

(21) Application number: **06014609.9**

(22) Date of filing: **01.10.1999**

(84) Designated Contracting States:
DE FR GB NL

(30) Priority: **05.10.1998 JP 29914198**
06.10.1998 JP 28375198

(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC:
99119559.5 / 1 003 207

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(54) **Laser irradiation apparatus, laser irradiation method, beam homogenizer, semiconductor device, and method of manufacturing the semiconductor device**

(57) A beam homogenizer configured for converting an originally rectangular beam into a linear shape having a two stage energy distribution in a width direction comprising a first beam width (w_1) having a first energy density (E_1) and a second beam width (w_2) having a second energy density (E_2), the beam homogenizer comprising: an optical lens (501) for dividing an incident laser beam in width direction into parts and enlarging the parts; and an optical system (204, 208) for synthesizing said parts of said laser beam divided by said optical lens in a width direction, whereby the synthesized laser beam has a two stage energy distribution in the width direction, wherein said optical lens (501) includes a plano-convex lens (602, 603, 604, 605) as a cylindrical lens and a plano-convex lens cut into halves (601, 606) perpendicular to its plane surface as a semi-cylindrical lens.

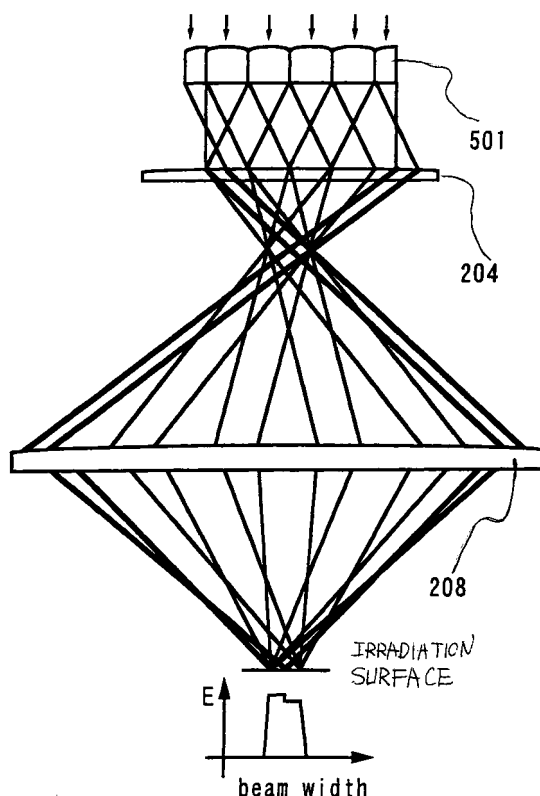


FIG. 5



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 06 01 4609

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			TECHNICAL FIELDS SEARCHED (IPC)
			G02B H01L
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 28 February 2007	Examiner Daffner, Michael
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>& : member of the same patent family, corresponding document</p>			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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